UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
REGION III
Four Penn Center
1600 John F. Kennedy Boulevard
Philadelphia, Pennsylvania 19103-2852

October 13, 2022

Subject: Monthly Progress Report – September 2022 comments AOI7

Dear Mrs. Doerr:

The U.S. Environmental Protection Agency (EPA) has reviewed the Marcus Hook Terminal (MHT) Monthly Progress Report – September 2022 AOI7 (Report) prepared by Sanborn, Head & Associates, Inc. on behalf of Evergreen Resources Management Operations (Evergreen), dated September 30, 2022. The EPA has the following comments on the Report:

Section 4.5: Preferential pathways for contaminant migration should consider fluvial channels associated with middle creek and anthropogenic features like the bulkhead and old/degraded dock pilings (if present). Anthropogenic features have the potential to create a pathway of upward vertical flow. Fluvial channels have the potential to create a pathway through granular sediments beneath the former location of Middle Creek. EPA suggests that Section 5.0, supplemental porewater sampling, include: 1) collecting a porewater sample in the historic fluvial channel of Middle Creek, near the shoreline, at a depth that would be anticipated to intercept or be within creek bottom sediment; 2) collecting a porewater sample adjacent to the southwest terminus of the bulkhead and, if possible, adjacent to or between the bulkhead and riprap; and 3) if old and degraded pilings exist (as observed in aerial 1953), an additional porewater sample collected adjacent to a subset of the pilings.

Section 5.1 Porewater Sampling Methodology: There is no mention of number of attempts to be made to collect a porewater sample before attempting the additional actions described. Please discuss whether, similarly to previous sampling, two attempts will be made or an alternative number. EPA is extremely interested in retrieving sample results from proposed locations PW-01B, PW-02B, PW-07B, and PW-13B.

Section 5.1.2: Every attempt should be made to reduce sample aeration, including:

- If possible, sampling using more than one filter should be avoided.
- Prior to filling the bottleware, the initial aliquot should be discarded (to help remove aeration introduced during the filtration) or utilized to measure water quality parameters, and the actual sample collected during a steady flow of effluent.
- If air or bubbles are observed within the tubing, adjusted procedures to remove air.
- Avoid exposing the sample to air during extended sample collection periods.

EPA requests that procedures associated with the use of multiple filters, observation of air bubbles created by the peristaltic pump, and start and stop times of sample collection should be documented on the sample form or field logbook at each location.

Section 5.1.2:

- Variation in sample depths and potentially collecting a deeper porewater sample may be necessary to evaluate fluvial channel pathways.
- Water quality parameter readings should be compared against background surface water.

Please specify which EPA analytical methods will be used for porewater and sediment samples. EPA Method 6010 was used to analyzed porewater and sediment samples collected at MHT. The US Army Corps of Engineers (USACE) utilized EPA Method 6020. At least one duplicate sediment and porewater sample duplicate should be analyzed using 6020 for comparison to the USACE results.

Figures 16-18: Revise sample identifiers from ND to NS.

Additionally, in the conference call referenced in the Report, EPA and Evergreen discussed the sediment results that exceeded its PRG. Evergreen proposed including supporting information on its position that tidal transport and deposition (after AOI7 area was filled) is the cause of the sediment in front of AOI7 as opposed to on-site arsenic impacts attributed to historic deposition. To assist in confirming the source (tidal fluctuations, historic deposition, precipitation from pore water, or a combination of the above), EPA requests vertical delineation of sediment. In terms of scope, EPA recommends collecting samples from at least two locations with the highest reported concentrations of arsenic in sediment. Soil stratigraphy should be documented during sample collection and sediment samples should be collected at every 1-to-2-foot interval or change in lithology. Sediment samples should be analyzed for Arsenic. Speciation analysis may be warranted to understand if arsenic in sediment has accumulated from metal precipitation from porewater.

Lastly, it was discussed on the call that Peeper porewater samplers would be considered to remove the variable associated with sample aeration. EPA suggests that at least one sample location utilize a peeper duplicate sample be collected in conjunction with a pushpoint sampler.

If you have any questions or concerns, please contact me at 215-814-2796 or bilash.kevin@epa.gov upon receipt and review of this letter.

Sincerely,

KEVIN BILASH

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Date: 2022.10.13 14:56:28 -04'00'

Kevin Bilash
Land, Chemicals & Redevelopment Division
US Environmental Protection Agency, Region III

cc: file